

# ABSTRACT

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Title of bachelor thesis: Separation and determination of acetylcholinesterase tacrine inhibitors by HPLC

The bachelor thesis is focused on development of HPLC-UV method for determination of enantiomers of substance *N*-(8-((6-chloro-1,2,3,4-tetrahydroakridin-9-yl)amino)oktyl)-6-hydroxy-2,5,7,8-tetramethylchroman-2-karboxamid (in text 1-AO-43.1), selected compound from tacrine-trox hybrids. These hybrid structures composed of tacrine and trolox, could be considered as promising candidates of potential drugs, which in contemporary research of drugs against Alzheimer's disease occupy leading position.

The aim of this bachelor thesis is to evaluate a separation of enantiomers, which are produced in organic synthesis of tacrine derivative on the chiral stationary phase (CSP). The thesis brings an explanation of basic characteristics of HPLC, chiral separation of enantiomers, pathophysiology and treatment of Alzheimer's disease and short characteristics of tacrine-trox hybrids in the theoretical section. In the experimental section, development of methodology of chiral separation of substance 1-AO-43.1 by HPLC is described.

In the bachelor thesis, efficiency of separation on two chromatographic columns with chiral selector was studied. Chiral selector on the first column was macrocyclic antibiotic teicoplanin and the selector on the second column was tris(3,5-dimethyl)carbamate cellulosa. Then the most efficacious discovered separation method was optimised and an influence of temperature, column thermostat, flow rate of mobile phase, value of injection and an influence of the type of solvent on chiral separation of enantiomers was evaluated. Finally, precision of detector response in repeated measurement and limit of detection of the method were determined.